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ABSTRACT

A study of the translation process compared the decisions that native speakers (experts) and non-native speakers (non-experts) made that influenced resulting translations. Subjects were 40 students, graduate students, and faculty in a university foreign language department. English language proficiency was measured for native speakers by using the ACTFL Language Proficiency Guidelines, and for non-native speakers using the Test of English as a Foreign Language (TOEFL). Student and faculty participants received a guide to 12 graphic organizers for thought processing and a page of semantic units in technical contexts to translate, and were asked to use the graphic organizers to create flowcharts of their translation decision-making processes. Analysis of the charts showed a significant differences in the processes used for translation at different proficiency levels, and that translation processes are generalizable to at least two expertise levels, expert and non-expert. Implications for development of machine translation techniques and for further research are discussed briefly. Contains 13 references. (MSE)

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Translation Model Decision Differences Between Expert (Native or Near-Native) Target Language Speakers and Non-Expert (Non-Native Or Second) Target Language Speakers.

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Summer 1996

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Abstract

This study focused on the decision making process between expert and non-expert translators. There were 45 participants chosen for the study, 30 graduate, 15 faculty and staff students speaking a variety of foreign languages. The results showed that the expert translators tended to develop flow charts that depicted the use of monolingual references in specific subject areas, whereas the non-experts tended to rely on definitions in bilingual reference materials. The experts were interested in translating in context, and the non-experts tended to rely in general default definitions for their translations.

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Introduction

The project developed a flow chart of decision making by experts in the area of foreign languages and compared it with a flow chart of decision making by non-experts in the area of foreign languages. The target audience for this study was towards the translators and interpreters of foreign languages in general. The actual audience that was accessible for this study were students enrolled at West Virginia University's Foreign Language program, and its professors. The study attempted to answer the question of process differences between native and non-native speakers of foreign languages.

The development of a model has implications beyond translation and interpretation. The differences inherent in decision making between cultures may extend into other areas of research. The area of telecommunications is a prime example, so are the areas of media, publications, commerce, and trade. The development of a model will immediately be useful in the area of machine translation. Machine translation (MT) currently focus on semantic and lexical differences between languages. The correlation of language proficiency to decision making processes will aid the programmers in developing algorithms that take this variable into consideration. This will allow the human element to be introduced in a machine operable format.

Literature Review

Translation is an important factor for the continued development of the world. There are a number of purposes for translation as summarized by Newmark (1988):

1. to promote for understanding between nations, groups and individuals;

2. to facilitate the spread of information (i.e.: technology transfer);

> 3. to explain the features of national and regional cultures;
>
> 4. to further the appreciation of great works of literature, science and the humanities, many of which expose the harmful features of cultures (as does translation itself) within a universal ethical perspective or optique, (previously often its only purpose). (Newmark, 1988, p. 30)

Larsson (1988) also defined Language for Specific Purposes (LSP) as a sublanguage that "may be limited to a certain kind of equipment, or even a subsystem of such equipment" (p. 96). The research conducted in the area of individual and Machine Translation (MT), has been on correlation's, the correlation's appeared to be stronger with an increase in the size of semantic units being translated. Zarechnak (1988) discussed the problems of using units where "single entries versus clustered entries with or without inflectional parts" provided an overwhelming amount of information to interpretation (p. 155). Even with the small samples used, in all the cases studied, there had been the need for a native or near-native speaker (NS) to review and/ or revise the MT material.

The NS had been used in a number of positions during translation studies, in the end to do final proofs of MT, in the middle to make choices of lexical items, and there has been no known study involving the NS at the beginning of the translation, except as control variables where their output was compared with the MT output to judge the quality of the products. Cote (1988) defined an acceptable translation as being one that had been "post-edited (referred to as re-translation by some linguists) to clean up some of the MT ambiguities and errors" (p. 134). He noted that there were inherent dangers in post-editing works without reference to the original texts, "the accuracy of the translation because the post-editor can made errors in the translation in the process of editing it, i.e.,

making it read smoothly" introduced an amount of ambiguity into the translation (p. 135). To avoid errors, "many analysts prefer receiving the raw (not post-edited) MT" (Cote, 1988, p. 135). The analyst could then interpret the material with greater accuracy, and "Only the most experienced translators can spot the kinds of errors" that were likely to be made during the translation of material during the post-editing phase (Cote, 1988, p. 136). These differences were substantial in specific language translations that were technical in nature.

Larsson (1988) presented discussions on the "prime responsibility in technical communication is to provide the user with an appropriate, explicit mental model of the system she or he is expected to be using" (p. 94). Larsson (1988) also noted that for a translator to be able to exercise "sound judgment on issues of target language grammar, and the essentials and objectives of the specific act of communication" it would be preferable that the translator work from "a foreign language as a source language into her or his native" language (p. 96). By taking advantage of the native language, the translator would be able to focus on the meaning of the interpretation. In this way the interactive system of translation would also allow the users to "also be part of the system in one way or another" (p. 95). Newmark (1988) also pointed out this area of translation and interpretation specialization as the beginnings of "community interpreting" that is beginning to take shape in America (p. 33).

There had been a standardizing of "translation procedures first by Vinay and Darbelnet (1964), then by Catford (1965) " as researched, Newmark (1988) also advises that there "has also been little written on the three stages of translating: 1. the approach; 2. the process; 3. the revision" (1988, p. 32). He also points out studies that have looked

at the attitudes and personal inventories of translators, showing little correlation. The strongest correlation had been in motivation to translation. Highly motivated people were more successful translators, and to be successful, Newmark also pointed out that "translation is a creative, problem solving occupation" that is dynamic in nature (1988, p. 31). Newmark also points out the research devoted to interpretation aptitude testing, as in other areas of specialization, "motivation is more important that aptitude" (1988, p.33).

The current studies do not answer the question of: How can motivation be applied to MT programs if it is so important? Zarechnak (1988) defines machine translation as:

> the application of logical software programs to produce the dynamic equivalencies from the source language into the target language such that the user, if he is a specialists in the field, could understand the message contained in the source language, and, further, if the message is a description of an experiment, the experiment could be safely carried out in another laboratory (p. 154).

The ability of computers to translate became more efficient when the language was more conventional (Newmark, 1988, p. 34). Larsson's study (1988) concluded that "even very simple pieces of software may be helpful to the professional translator in terms of saving time and physical effort" (p. 98). Zarechnak (1988) supported the view and stated that "one needs the computational facilities to perform and/or imitate human activities in the field of translation [as in the collection of] information from human experts in a given field concerning both the data from the field and the knowledge they represent" (p. 160). Larsson (1988) suggested that future research be conducted that would observe user behavior and "try to establish, whether the resulting technical performance will be correct

(i.e. whether the users will adequately operate or correctly install and maintain specific equipment)" and even Cote (1988) discussed the machine translation development requirements, and pointed out that MT works best when:

1) the text to be translated is confined to a limited subject area,

2) the post-editor is a skilled translator,

3) the post-editor is knowledgeable in the subject being translated,

4) the computer dictionary is large,

5) the material to be input is already in electronic form, and

6) the need for accuracy is not great. (p. 137)

The main research needed were in the area of the processes of interpretation according to Newmark (1988). The study of the processes involved in interpretation were "pioneered by Lederer" in 1985 (Newmark, 1988, p. 33). Current standards in MT were explained by Cote (1988) in relation to the MT process in references to dictionaries. The computer would translate a subject specific text by searching for words in the subject specific "dictionary first and then defaulting to a general dictionary" in order to provide translations in context (Cote, 1988, p. 131). The procedure used was similar to a participant study conducted by Jaaskelainen (1988) where he focused on the differences in the total number of times reference material was used by participants, he found that the differences seemed "to be between individuals" in the study and not according to any grouping (Jaaskelainen, 1988, p. 73). Although the experienced participants preferred using a monolingual dictionary first in almost two thirds of his cases, the non-experienced participants used the bilingual dictionary first in the majority of the cases. The statistical analysis of the type of data used revealed little of what was going on in the

process on translation.

In order to deal with the abstract process in translation, Zarechnak (1988) stated that from past experience "intuition could and should serve as a source for linguistic modeling of medium generality" (out of three possible degrees of isomorphic resemblance: universal, medium, and low generality) for the development of an "Intermediary Language" (IL) in MT (1988, p. 152-3). The development of an IL "might serve as a unifying trend for all of us working on MT" (Zarechnak, 1988, p. 170). The IL could be used as a universal focus point for all translation to work towards, and from in order to produce consistent translations. In technical translations, a single reference point to work towards in translation provides a key to proper translation. The idea behind confining the MT to one subject field, thus allowed better quality in the finished translations (Cote, 1988, p. 136). Zarechnak (1988) pointed out the developmental efforts to produce a tree-form for use in determining an IL to use in MT, while suggesting that the "preceding stages in MT efforts reached their limits simply because the systems developed were incapable of running on a high level of abstraction" (1988, p. 151).

This study intended to add to the research that was currently lacking in the area of interpretation process. The study focused on the beginning of the translation process. An area that had received little attention when compared with the references to the roles of human interpreters in MT, and compares the decisions that NS and non-experts make that eventually influence the resultant translation.

Research Question and Hypothesis

Research Question

Is there a difference between translation selection process models for non-expert foreign language translation and the translation selection process models for experts in specific foreign language translation?

Null Hypothesis (Ho)

Selection processes for non-expert translations are no different than selection processes for expert foreign language specific areas translation.

Alternative Hypothesis (Ha)

Selection processes for non-expert translations are different than selection processes for expert foreign language specific areas translation.

Research Hypothesis

There is a significant difference in selection processes for non-expert translations than the selection processes for specific foreign language translation areas of specialization because experts in the field are concerned more with the proper meaning of terms in context specific areas, whereas the general translation processes tend to use default general meanings.

Variables

The dependent variable being measured in this study were the development of a flow chart processes for translations. The independent variable was the range of expertise (non-experts and the expert translators).

Definitions

An expert translator was be an individual that was considered bi-lingual, and translated information from a second language to the target, or first language. The expert may have also specialized in an area of content matter. A TOEFL of 600 or an ACTFL of Advanced Plus categorized the expert.

Non-expert translators were individuals that would consider themselves to be at least capable of some proficiency in two languages. Non-experts knew general information about the two languages involved in the translation process. A score below a TOEFL of 600 or a score below an ACTFL of Advanced Plus categorized the non-expert.

Processes refereed to the manner in which the translators displayed their internal thought process for translation.

The first language (1L) was the native language (NL) of a person. The second language (SL) was the first language learned beyond the native language.

Participants were chosen from the graduate program at the Foreign Language Department at West Virginia University. There were approximately 60 potential participants, with 45 being graduate students and 15 faculty and staff. The number of participants involved in the study was 40.

Methodology

Design

The study was designed as a quasi-experimental, non-equivalent, pre-test, post-test.

Expert Group	O1	X1	O2

Non-Expert Group O3 X1 O4

To control for language ability or proficiency among the participants, O1 and O3 were the observations using the ACTFL FL Test and the TOEFL test; with O1 being the Expert group scores and O3 being below the expert scores. The final observations O2 and O4 were the comparisons of the individual and group flow charts. The flow charts depicted by the experts were analyzed for similarities in construct: first to each other in the group; then to the group as a whole; and finally a comparison was made to the other group.

Subjects

The study was designed to allow the experts and the non-expert to be identified according to their level of proficiency and expertise in translation. The subject pool was selected from the Foreign Language Department graduate students, faculty and staff at West Virginia University. The Department specialized in foreign languages and literature. The subjects overall had a general background in foreign languages.

Materials

The materials used in the study were: the ACTFL Language Proficiency and TOEFL scores which were available from the Foreign Language Department. The means for measuring this ability depended on the language spoken. Native English speakers were measured for language expertise based on the ACTFL Oral Proficiency Interview and non-native English speakers were measured based on a similar measure, the TOEFL Section 1 score (Ke, 1995, p. 210). The graphic organizers to be offered for use to the participants in developing their decision making charts are located in on page 22, Graphic

Organizers.

Dependent measures

The measures used were the American Council on the Teaching of Foreign Languages (ACTFL) Oral Proficiency Interview for non-native foreign language speakers, and the Test of English as a Foreign Language (TOEFL) for non-native English speakers in the WVU Foreign Language Department (Department of Foreign Languages: Graduate Student Handbook, 1995-96). The scores needed for graduation from the West Virginia University Foreign Language Department were a TOEFL of 600 or an ACTFL of Advanced Plus. The Department required scores were used to differentiate between expertise groupings. The two measures were used to divide the participants into two groups. Those above a TOEFL of 600 or an ACTFL of Advanced Plus were categorized as an expert, those below were considered non-expert. The score delimitation represented limited to no expertise in the language, a score above represented native or near-native fluency in a second language (Ke, 1995, p. 210; Thompson, 1995, p. 408-409).

Reliability

These scores were reliable because they have been consistently used in the WVU Department of Foreign Languages for a long time to measure the graduate proficiency in foreign languages. The scores on the ACTFL were assigned by raters that were selected to be language raters by ACTFL. Inter rater reliability studies have also been conducted and the ACTFL scores have been found to be reliable among raters (Thompson, 1995; Ke, 1995). The studies used a Cohen's kappa for the languages and found for each of the

languages the following inter rater reliability: Spanish, 0.474; French, 0.531; Russian, 0.469; German, 0.516. These scores translated into the chances that two raters would assign the same rating in each languages as: four to one; five to one; four to one, and five to one respectively (Thompson, 1995, pp. 416, 418). The reliability of the exam has been established through it consistent application to the graduate student program at West Virginia University's Foreign Language Department.

Validity

The tests covered the content area of the study, language proficiency, as a measure for grouping participants into two groups. The measure was considered important in the study because the focus of the research dealt with the proficiency of translators and the thought processes that occurred. In order to account for language ability, the participants needed to be measured for this ability.

Participants that had are a TOEFL of 600 or an ACTFL of Advanced Plus were placed into one group, while those that had less than a TOEFL of 600 or an ACTFL of Advanced Plus are placed into another group. The measure was considered valid because it did measure the construct under consideration to be controlled for in the study. The measure was a standard for language proficiency in the Foreign Language Department at West Virginia University. The test had been used through the Foreign Language Department at West Virginia University to measure the acquisition level of foreign languages by graduate students, and has been used by the Department of State, Central Intelligence Agency, and the Defense Language Institute for similar purposes (Thompson, 1995, p. 408).

A requirement for graduation from the Foreign Language Department had been set at Advanced Plus for the ACTFL and at 600 for the TOEFL. The validity of the measure had also been established through repeated ability of successful graduate students to pass the exam, and unsuccessful graduate students to fail the exam since it's introduction. The measure had been used as a support mechanism to ascertain that students had mastered a foreign language to an elevated degree, and to either promote students to graduation status, refuse graduation, or to recommend further study in the language of specialization.

Procedures

The study began with the selection of participants. The participants were selected from the available participant population at the University during the training sessions being conducted by the Foreign Language Department during the month of August. The training session was held to orient the new graduate students to the Department and to introduce the faculty and staff to the graduate students. A script (page 20) was read to the participants at the beginning of the study. The data was collected at that time for a number of reasons: the new students would not have been influenced by faculty teaching at this time; the students had recently arrived from their home countries and had not been influenced by the American culture by any degree that would affect their decision making ability; the TOEFL scores would have been submitted to the department; the faculty was not under teaching loads; and the students were free form course work requirements.

The students were instructed on the purpose of the study. The procedures for designing a flow chart of decision making was based on the designs suggested from The

Cooperative Think Tank (Bellanca, 1992), which described 12 graphic organizers for thought processing (see page 22). The students and faculty staff received a two page guide to using the graphic organizers and were instructed to use the one with which they felt comfortable, or to create their own if none were useable to them. This step was used to allow the participants maximum freedom in representing their thought processes.

The students were also given a page of semantic units in technical context to translate. Technical content was used to allow the participants to have a similar chance of interpreting the material from the beginning of the study. The participants were considered generalist since they were part of a general foreign language program. Their areas of specialization were generalizations, not specific technical areas. The semantic units were described in context, and pictures were used where appropriate for specific technical examples. The participants were then be shown an example of the processes used for completing each of the graphic organizers in context (i.e.: The participants were given directions on how to complete a flow chart, as well as an example). After the instruction, the participants were instructed to complete their designs using all the available resources needed. If help was needed in locating resources, the participants were told to use the librarians and faculty available at the University. The participants are requested to return their flow charts within one month. At the end of one months time, the participants were reminded of the flow-chart, and if necessary, given necessary time to complete the assignment. The collection of the flow charts was considered successful if 95% of the participants return the flow charts.

Once the designs were completed by the participants, the graphic organizers were grouped according to language proficiency. The charts were then be grouped according to

their ACTFL and TOEFL test scores. The resultant graphic organizers were then analyzed into a single sample based on the most frequently displayed descriptions used by the participants. The developed flow-charts were compared with each participant in the same group (as determined by ACTFL LP Scores) to determine if consensus existed on the same level. The flow-charts were then be compared with the other group (based on the level of language proficiency) to determine if a correlation existed. The results of the study were then summarized, conclusions drawn, and further implications addressed form the study. The results and conclusions were then reported.

IRB Procedures

The participants were to be selected from the available faculty, staff, and graduate students at West Virginia University and its Foreign Language Department. The participants were to be coded to ensure anonymity. The study first went through approval procedures in the Department of Technology Education, the study was approved by the researcher's doctoral committee, and by the Chair of the Foreign Language Department at West Virginia University. The study also sent to the IRB at WVU since it dealt with human subjects. The WVU IRB had approved the study for research on human subjects at the exempt level (see page 21). This research qualified for IRB exemption status because: 1) it was conducted in normal educational practices; 2) the subjects were not under the age of 18; 3) there was no risk to the subjects; 4) the information dealt with no sensitive aspects; 5) the subjects were not identified; 6) the researcher was not the course instructor; 7) no consent forms were used; 8) the subjects were not video recorded; and 9) deception was not used.

Sample

The sample consisted of 90 students and 15 faculty that were in the Foreign Language Department at West Virginia University during the fall 1996 semester. The participants ranged in age from 18 to 75 years old. Before participating in the study, the students were required to have either the TOEFL or the ACTFL tests at West Virginia University. Since there were only two groups for the study offered at the university, one class was used for the expert group, and the other was assigned the non-expert group. The sample could be argued to be representative of general translators and interpreters in foreign languages.

Implications and Future Study Suggestions

The design accounted for individual differences in language proficiency levels between experts and non-experts in language translations. The study showed that there was a significant difference between the level of expertise and the processes used to translate materials. The study showed that translation processes are generalizable to at least these two levels of expertise, expert and non-expert. The distinction would allow the inclusion of this factor in machine translation systems. To consider the expertise of users in translation programming would be advisable in order to default the programs dictionaries to the proper sequence as shown in the study.

The models developed by the participants in this study could also be used as preliminary flow charts for the programming language decisions that are required when conceptualizing products to be developed. The benefits to translators in general would be the use of the flow charts to model instructional material. The programming material could also be developed using the flow charts as guidance. The usability of the developed

flow charts may also prove to be reliable when used to predict the decision making processes in other technical areas such as medicine and sociology. The added dimension of expert novice distinctions in translations may also be inherent in decision making between cultures and may extend into other areas of research. The area of telecommunications is a prime example, so are the areas of media, publications, commerce, and trade.

A suggestion for future study would evolve around the gender differences in decision making processes of translations and also the ability to control for culture. A comparison of cultural decision making processes would perhaps allow each language program to be tailored to the customs and assumptions inherent in a target language culture.

Script For Study

Good morning, welcome to West Virginia University and the Foreign Language Department. Thank you for agreeing to participate in my study on modeling decision differences. The goal of my research is to study the development of decisions made by translators and interpreters in foreign languages. The information gathered will be used for my doctoral dissertation.

I want to point out several things to you before we start:

1. Your participation is entirely voluntary and you do not have to respond to every item or question;
2. Your responses will remain anonymous and confidentiality will be maintained;
3. Neither your class standing, athletic status, or grades will be affected by refusing to participate or by withdrawing from the study.

Thank you for agreeing to participate in this study.

IRB Approval

College of Human Resources and Education
West Virginia University
Office of the Dean

July 15, 1996

MEMORANDUM (MOCK SAMPLE ONLY)

TO: Doug Eckert

FROM: Ernest R, Goeres
Associate Dean

RE: Human Resources and Education H.S. #96-000

Title: Translation Model Decision Differences Between Expert (Native or Near-Native) Target Language Speakers and Non-Expert (Non-Native Or Second) Target Language Speakers.

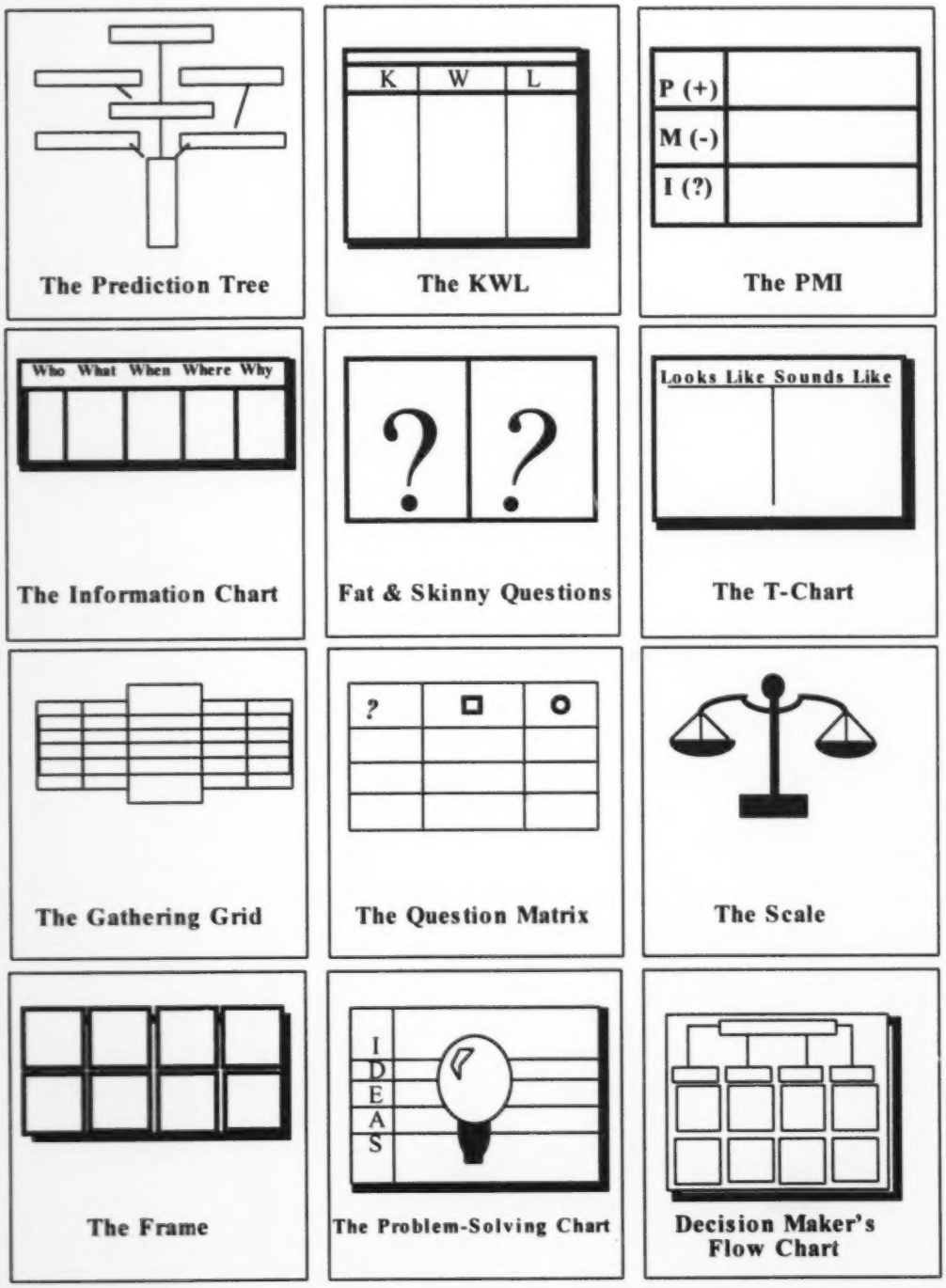
Your Application for Exemption for your above-captioned research project has been reviewed under the Human Subjects Policies and has been approved.

This exemption will remain in effect on the condition that the research is carried out exactly as described inn the application.

Best wishes for the success of your research.

cc: HRE Dean's Office File
Student Advising and Records
Doug Eckert, Researcher

Graphic Organizers



Adapted from: Bellanca, J. (1992). The cooperative think tank. Illinois: Skylight Publishing Inc.

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